



MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES  
MONTHLY ACTIVITIES REPORT OF THE AIR QUALITY BUREAU

December 1976

STATE DOCUMENTS

JUL 8 '77

1. Highlights

Considerable time spent on proposal for the health effects study.

Preparation and issuance of permit renewal for Hoerner-Waldorf expansion,

Preparation for meteorological study in Columbia Falls continued. Wind instruments and towers installed.

Legal action against The Anaconda Company for violations of ambient air quality standards near the smelter in progress.

2. Ambient Air Quality Network

Standards Exceeded:

SO<sub>2</sub>

ASARCO, Montana City, 1 excursion Fed. 3-hr std.  
Microwave, E. Helena, 5 excursions MT 1-hr std.  
Saddle Mountain, E. Helena, 11 excursions MT 1-hr std.  
Saddle Mountain, E. Helena, 1 excursion MT 24-hr. std.  
East Station, E. Helena, 1 excursion MT 1-hr std.  
Cogswell Building, Helena, 1 excursion MT 1-hr std.  
Mill Creek, Anaconda, 4 excursions MT 1-hr std.  
Mill Creek, Anaconda, 1 excursion MT 24-hr. std.  
Mill Creek, Anaconda, 1 excursion Fed. 24-hr std.  
Mill Creek, Anaconda, 1 excursion Fed. 3-hr. std.  
Hiway Jct., Anaconda, 45 excursions MT 1-hr. std.  
Hiway Jct., Anaconda, 4 excursions MT 24-hr. std.  
Hiway Jct., Anaconda, 3 excursions Fed 24-hr std.  
Hiway Jct., Anaconda, 6 excursions Fed. 3-hr. std.  
C-Hill, Anaconda, 7 excursions, MT 1-hr std.  
27th & Montana, Billings, 4 excursions MT 8-hr. std.  
Cenex, Laurel, 214 excursions MT 1-hr. std.  
Cenex, Laurel, 17 excursions MT 24-hr. std.  
Cenex, Laurel, 15 excursions Fed. 24-hr. std.  
Cenex, Laurel, 5 excursions Fed. 3-hr std.

Hydrocarbons

27th and Montana, Billings, 19 excursions MT 3-hr. std.

MSL AUG 31 76

61 10000 10000

Total Suspended Particulate

Anders Res., Columbia Falls, 2 excursions Fed. std.  
Anders Res., Columbia Falls, 2 excursions MT std.  
Hastie Res., E. Helena, 1 excursion Fed. std.  
Hiway Jct., Anaconda, 2 excursions Fed. std.  
Hiway Jct., Anaconda, 1 excursion MT std.

Air Stagnation Advisories:

Burning restricted with Air Stagnation Advisories 11 days of the month.  
Air quality generally good otherwise except for considerable fog in the Kalispell, Missoula, and Hamilton areas.

Laboratory Status:

Total determinations for the month	243
Total samples for the month	243

Developments:

Routine maintenance of analyzers in all areas of state.

Repaired Beckman analyzer, recorder and spectrophotometer.

Calibration of all hi-vols in Helena area.

Memo sent to hi-vol operators with operation procedure manuals and 1977 schedule.  
Memo sent to hi-vol operators pointing out improper procedures.

Repairs made on analyzers and sampler in Anaconda area.

Completed a nitrogen dioxide bubbler audit for Rockwell and received results of a nitrate-sulfate audit. Sulfate nitrate results good on 4 out of 6 samples.

3. Permits and Tax Credits

Construction Permits:

Applications

Champion Building Products, Silver City, replace existing tepee burner  
Inland Asphalt Co., Lincoln County, asphalt plant  
American Chemet, E. Helena, copper melting furnace and stack  
Wickens Brothers, Rosebud County, portable gravel crushing plant  
Wickens Brothers, Carbon County, portable gravel crushing plant  
Decker Coal Company, Decker, coal handling facility  
Continental Oil Company, Billings, vacuum unit vent gas incinerator  
Continental Oil Company, Billings, sour water stripper vent incinerator



Approved  
Gus M. Albert, Valley County, portable gravel crusher  
American Chemet, E. Helena, copper melting furnace and stack.

Tax Credits:

Anaconda Company's latest request still being processed (electric furnace roaster)

4. Variance Status

Current Variances:

Anaconda Aluminum Company, Columbia Falls, F- and particulate, expires 7/1/77  
Anaconda Company, Anaconda, Particulate, expired 12/31/76. No extension  
request has been received.  
ASARCO, Inc., E. Helena, SO<sub>2</sub>, expires 6/30/77

New or Renewed:

The Anaconda Company's SO<sub>2</sub> renewal hearing will be held at the January  
Board meeting. Renewal expired 6/30/76.  
Anaconda Company Reduction Works, visibility rule, not yet scheduled for  
hearing.

5. Enforcement Actions

Citations:

None

Notices of Violation:

None

Order for Correction Action:

None

Court Actions:

Clayton Berg, Helena, open burning, trial set for January 14, 1977.

6. Tepee Burner and Open Burning

Evaluation of charts and logs from tepee burners in the state. A number of mills are  
still sending in inadequate data.

Very little open burning took place during the month. Slash burning now finished for  
the season.



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Tepee Burner Status:

No. at Start	40
New Starts	0
Shutdowns	1
No. at End	39

Open Burning Permits:

Kalispell Office	66	Sanders Co.	9
Cascade Co.	2	Yellowstone Co.	11
Lake Co.	32	Rest of State	250
Missoula Co.	13	Total Permits	383

7. Source Tests Performed

Agency Source Tests:

Ideal Cement, Trident, cancelled

Non-Agency Source Tests:

None

8. Field Investigations

Ideal Cement, Trident, plant inspection  
Tony Patrick Paint Shop, Butte, inspection  
Diamond International, Superior, tepee burner, inspection  
Idaho Cedar, Superior, tepee burner, inspection  
Yellowstone Pines, Belgrade, tepee burner, inspection  
Brand S. Livingston, Tepee burner, inspection  
Burkland Studs, Livingston, tepee burner, inspection  
Park Lumber, Livingston, tepee burner, inspection  
Wicks Corp., Townsend, tepee burner, inspection  
C & C Plywood, Evergreen, fire in chip pile out 12/3  
Montana Lumber and Plywood, Evergreen, opacity observation; inspection of burner  
Superior Buildings, Col. Falls, tepee burner inspection  
Country Logs, Inc., Mtn. Brook, tepee burner inspection  
Kennedy-Stevens, Eureka, opacity observation  
Fork Cripe Cedar Mill, Troy, inspection  
Idaho Cedar Sales, Troy, inspection  
L & L Cedar, Troy, inspection  
Troy Landfill, Troy, inspection  
Arlee Landfill, Arlee, inspection  
Plum Creek #2, Pablo, opacity observation  
Dupuis Lumber, Polson, no burning taking place  
Anaconda Aluminum, Columbia Falls, opacity observation  
C & C Plywood, Evergreen, opacity observation  
Louisiana-Pacific, Columbia Falls, boiler documentation  
Plum Creek #1 and #3, Columbia Falls, tepee burner, opacity observation  
Stoltze Land & Lumber, Half-Moon, opacity observation





9. Complaints

Hoerner-Waldorf, Missoula, odor and poor visibility (12 complaints)  
Idaho Cedar, Superior, fallout, inspection scheduled  
Mrs. Madsen, Havre, burning insulation from copper wire, under investigation  
Silica Quarry, Anaconda, dust, under investigation  
Caird Engineering, Helena, smoking, under investigation  
Del Conner Lumber, Darby, open burning, under investigation  
Yellowstone Pine, Belgrade, smoke and excessive emissions, under investigation

10. Data Processing Services

Ambient Data Summary:

Monthly report of November air quality data attached.

Emissions Inventory Status:

No source updates were received or processed this month.

Prevention of Significant Deterioration:

No significant activities performed in this area.

Modeling:

Several meetings held on diffusion modeling analysis done on the Hoerner-Waldorf Corporation in Missoula.

Modeling performed on AQMA analysis at Billings for SO<sub>2</sub>. Sources modeled include Cenex, Conoco, Exxon, Montana Power, and Montana Sulfur.

11. Environmental Impact Statements

Agency Impact Determinations:

Issued responses to comments on Hoerner-Waldorf PER.

Other Agency EIS's Reviewed:

None

12. Status of Studies, Contracts and Reports

Health Study, Phase I - The Bureau of Records and Statistics started this phase on November 1, 1976. They should be done by March 1, 1977.

Health Study, Phase II - Region VIII EPA, has approved a BOA grant to fund this phase of the study.

Work begun on study relating health statistics and air pollution levels in Montana.



AQMA work plan, in-house review complete

Two reports on Anaconda smelter SO<sub>2</sub> problems not yet received. This is basis for delays in SO<sub>2</sub> variance renewal hearing (see item 4).

Quality assurance - Continuing research on quality assurance procedures for ambient program. Quality assurance procedures for laboratory portion of hi-vol procedures complete.

Continued research on hi-vol corrections to S.A.C.

13. Schools and Training

None

14. Public Hearings and Meetings

Public Hearings:

None

Meetings Attended:

Hoerner-Waldorf permit, Helena (3)  
State Lands, ASARCO Troy project, Helena (2)  
Health effects study, Helena  
AQMA work plans, Helena  
Water Quality Bureau, street cleaning, Helena  
Arsenic Study, Helena  
State Lands, EQC, SRS, DCA, Billings SO<sub>2</sub> problem  
Department Highways, Impact Evaluation Group, Helena  
State Lands, EPD, Circle West air quality study, Helena  
Decker Coal Co., permit application  
Anaconda Co., AAQ standard violations, Helena  
Anaconda Co., Butte City Planning Board, Air quality study, Butte

Intra-Staff Meetings:

Hoerner-Waldorf, Helena (4)  
MEPA, Environmental Sciences staff, Helena  
Health effects study, Helena (3)  
Billings SO<sub>2</sub> problem, Helena

15. Public Information Requests

Rules - 7  
General - 3  
Clean Air Act - 4

Press release on Hoerner-Waldorf permit renewal



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16. Fiscal Status

Grants Received:

None

Monthly Expenditures:

Program	Budget	Expenditures		Funds Remaining
		December	Year to Date	
0630	454,176	47,325.35	193,195.51	260,980.49
0631	74,400	--	6,587.50	67,812.50
0633	70,499	5,763.26	33,862.46	36,636.54



# MINNAPOLIS DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

## MONTHLY SUMMARY OF AIR QUALITY DATA

November, 1976

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Pollutant: Misc. Continuous Data

Units: Parts Per Million

AREA		HIGH READING			ARITHMETIC AVER.			Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Days of Data		
140	Carbon Monoxide 18th & S. 27th Billings	16.00	27.50	27.50	2.337	11		
140	Hydrocarbons 27th & Montana Billings	6.60	10.20	23.10	2.706	11		
143	BN Site Colstrip	2.00	3.50	3.50	1.606	11		
143	Meth. Hydrocarbons BN Site Colstrip	1.80	2.00	3.80	1.593	11		
143	Non-Meth. Hydrocarbons BN Site Colstrip	0.40	2.00	2.00	0.013	11		
143	Nitric Oxide BN Site Colstrip							
143	Nitrogen Dioxide BN Site Colstrip							
143	Oxides of Nitrogen BN Site Colstrip							

Pollutant: Sulfur Dioxide

AREA		HIGH READING			ARITHMETIC AVER.			Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Days of Data		
140	Ozone 27th & Montana Billings	0.03	0.10	0.10	0.018	11		
143	BN Site Colstrip							
140	Sulfur Dioxide 27th & Montana Billings	0.62	0.60	0.80	0.047	9		7 excur. Fed 24-hr. std.
143	Laurel Farm Billings	0.24	0.50	0.50	0.012	6		
142	Laurel Water P1 Billings	0.20	0.44	0.44	0.009	11		
142	East Stack E. Helena Microwave	0.24	1.08	1.08	0.012	11		
142	Saddle Mtn. E. Helena C-Well	0.43	0.58	1.68	0.007	11		1 excur. MT 24-hr. std.
142	Anaconda Hwy 101 Anaconda	1.45	2.54	2.54	0.017	11		2 excur. Fed. 24-hr. std.
142	Mill Creek Anaconda	1.52	1.52	1.52	0.020	11		2 excur. Fed. 24-hr. std.
142	Post Office Anaconda	0.64	0.79	0.79	0.014	11		1 excur. MT 24-hr. std.
143	BN Site Colstrip	0.16	1.02	1.02	0.009	11		
143	BN Site Colstrip	0.01	0.02	0.02	0.000	11		

Pollutant: Misc. Bubbler Data

Units: Parts Per Million

AREA		HIGH READING			ARITHMETIC AVER.			Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Days of Data		
140	Sulfur Dioxide Lockwood School Billings							
143	3/8 MI. NE Coop Billings							
143	Scobey Daniels Co. Pt. Peck							
143	McCone Co. Lane Deer Rosebud Co. BN Site Colstrip							
143	McRae Site Colstrip	0.0	0.0	0.0	0.0	11		
143	Nitrogen Dioxide Scobey Daniels Co. Pt. Peck							
143	McCone Co. Lane Deer Rosebud Co. BN Site Colstrip							
143	McRae Site Colstrip	0.0	0.0	0.0	0.0	11		

Pollutant: Total Suspended Particulates

Units: Micrograms Per Cubic Meter

AREA		HIGH READING			GEOMETRIC AVER.			Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Days of Data		
140	Morton Res. Big Horn Co. Warren Ranch	129	208	208	61.7	11		
140	Big Horn Co. Lockwood Sch.	36	146	146	25.4	11		
140	Billings	113	141	141	45.6	11		
140	KOH Billings	154	154	154	33.5	11		
140	City Hall Billings	98	200	200	63.9	11		
140	Grand Ave. Sch. Billings	108	199	199	55.5	11		
140	Burnstead Dr. Billings	1117	1117	1117	180.2	1		
140	Laurel Laurel Jr. Hi.	73	108	108	33.4	11		
141	Hospital Roof Great Falls	124	124	124	37.9	11		
141	Fire Sta. #1 Great Falls	196	196	196	71.9	11		
142	Six Bow Ten Host Butte	62	173	173	53.1	11		
142	Atkins Res. Butte	41	306	306	47.2	11		
142	Wicker Res. Butte	24	39	39	17.5	11		
142	Hwy 101 Anaconda	19	110	110	37.0	11		
142	McKinley Res. Glenview Co.	94	147	147	24.6	11		

\*\*\* Data not available at time of report





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MONTHLY SUMMARY OF AIR QUALITY DATA

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Pollutant: Total Suspended Particulate      Units: Microgram per Cubic Meter

Pollutant: Misc. Indicators      Units:

AREA		HIGH READING			ARITHMETIC AVER.		Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Mon. of Data	
142	Microcave	58	84	84	23.2	11	
	Jefferson Co.						
	212 Pacific St.	176	176	176	72.6	11	
	Lewis & Clark						
	Thermy Res.	36	202	202	31.4	11	
	S11. Bow Co.						
143	Littlefield	36	87	87	20.7	10	
	Miles City						
	Glendive	35	130	130	28.9	11	
	Dawson Co.						
	Lindsay (107349)	10	38	38	14.9	11	
	Dawson Co.						
	Lindsay (107312)	11	60	60	15.1	11	
	Dawson Co.						
	Fr. Peck	20	166	166	20.2	11	
	McCone Co.						
	Broadus	27	62	62	17.2	11	
	Powder River Co.						
	BN Site	72	104	104	27.6	11	
	Colstrip						
	McKee Site	42	86	86	17.4	11	
144	Colstrip						
	High School	153	294	294	89.5	10	
	Col. Falls						
	Chouska	214	336	336	82.7	11	
	Missoula						
	JB Field	157	176	176	41.5	11	
	Missoula						
	Frenchtown						
	Missoula	67	217	217	35.8	11	

AREA		HIGH READING			ARITHMETIC AVER.		Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Mon. of Data	
141	Dustfall Tons/Re.						
	Mountain States	44.05	44.05	44.05	22.21	11	
	Cascade Co.						
	Fire Sta. #1	21.30	37.73	37.73	18.22	11	
	Cascade Co.						
140	Sulfation Rate -						
	milligrams SO <sub>4</sub> /100 sq. cm.						
	S/S Mt. NF Coop	4.80	4.80	4.80	2.593	10	
	Yellowstone Co.						
	E. of Laurel	1.28	3.62	3.62	1.378	11	
	Yellowstone Co.						
	HL-Ball Trucking	1.18	1.41	1.41	0.873	10	
	Yellowstone Co.						
141	Stock Car Track	0.005	0.228	0.228	0.049	10	
	Cascade Co.						
	Phillips Ref. E	0.184	0.399	0.399	0.145	10	
	Cascade Co.						
	Phillips Ref N1	0.036	0.333	0.333	0.130	10	
	Cascade Co.						
142	Microcave	0.34	0.40	0.40	0.289	11	
	Jefferson Co.						
	Hwy Jct.	2.57	2.57	2.57	0.855	10	
	Deer Lodge Co.						
	C-Hill	0.67	1.04	1.04	0.728	5	
	Deer Lodge Co.						
143	BN Site	0.12	0.12	0.12	0.051	8	
	Colstrip						
	McKee Site	0.05	0.05	0.05	0.005	10	
	Colstrip						

Pollutant: Misc. Indicators      Units:

Pollutant: Misc. Indicators      Units:

AREA		HIGH READING			ARITHMETIC AVER.		Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Mon. of Data	
142	Fluoride Plates						
	micrograms/sq. cm/30 days						
	Millenburg	0.09	2.93	2.93	0.702	5	
	Powell Co.						
	Lahmans	0.04	1.38	1.38	0.352	5	
	Ramsay Co.						
	N. Ac. Highway	0.08	2.87	2.87	0.684	5	
	Powell Co.						
	Ramsay West	0.82	1.75	1.75	1.014	11	
	S11. Bow Co.						
	ESE Stauffer	1.32	7.87	7.87	3.384	11	
	S11. Bow Co.						
143	BN Site	0.01	0.02	0.02	0.014	7	
	Colstrip						
	McRae Site	0.01	0.01	0.01	0.006	7	
	Colstrip						
144	Dohboms Mt. Box	0.63	1.71	1.71	0.836	11	
	Flathead Co.						
	Teakettle #10						
	Flathead Co.						
	Glacier Park #1	0.28	0.58	0.58	0.308	10	
	Glac. Nat. Pk.						
	Glacier Park #2	0.40	0.58	0.58	0.342	10	
	Glac. Nat. Pk.						
142	Fluoride Plates						
	micrograms/sq. cm/30 days						
	Durant Canyon	1.20	2.29	2.29	1.505	6	
	Deer Lodge Co.						
	N. Ac. Highway						
	Powell Co.						

AREA		HIGH READING			ARITHMETIC AVER.		Comments
AQCR	Site Location	Current Month	Year-to-Date	Running Year	Year-to-Date	No. of Mon. of Data	
142	Fluoride Plates						
	micrograms/sq. cm/30 days						
	NW on Hill						
	Powell Co.	1.17	2.17	2.17	1.304	8	
	Ramsay West						
	S11. Bow Co.	2.00	10.92	10.92	4.154	8	
	ESE Stauffer						
	S11. Bow Co.	0.0	0.0	0.0	0.0	8	
143	BN Site	0.0	0.0	0.0	0.0	11	
	Colstrip						
	McRae Site	0.0	0.0	0.0	0.0	11	
	Colstrip						
144	Teakettle #10						
	Flathead Co.						
	Teakettle #6						
	Flathead Co.	2.19	8.82	8.82	4.864	10	
	Anacosta S						
	Glac. Park #1	0.56	0.72	0.72	0.422	11	
	Glac. Nat. Pk.						
	Glac. Park #2	0.74	0.81	0.81	0.417	10	
	Glac. Nat. Pk.						

\*\*\* Data not available at time of report

